ACC.16

1834
JACC April 5, 2016
Volume 67, Issue 13

Non Invasive Imaging (Echocardiography, Nuclear, PET, MR and CT)

COMPARISON OF LEFT ATRIAL STRUCTURAL REMODELING IN PATIENTS WITH AND WITHOUT ATRIAL FIBRILLATION: A SINGLE CENTER MRI STUDY

Poster Contributions
Poster Area, South Hall A1
Monday, April 04, 2016, 9:45 a.m.-10:30 a.m.

Session Title: Non Invasive Imaging: MR Valve Disease and Atrial/Ventricular Pathology
Abstract Category: 30. Non Invasive Imaging: MR
Presentation Number: 1263-260

Authors: *Christian Mahnkopf, Marcel Mitlacher, Johannes Brachmann, Klinikum Coburg, Dept. of Cardiology, Coburg, Germany*

Background: Left atrial fibrosis (LA fibrosis) detected using Late-Gadolininum Enhancement MRI (LGE-MRI) has been introduced as a strong independent predictor for success of pulmonary vein isolation (PVI) in patients with atrial fibrillation (AF). Nevertheless, it is still unclear if AF leads into LA fibrosis or if AF is the clinical manifestation of an altered LA.

Methods: A total of 198 (119 male) consecutively enrolled patients with AFIB underwent LGE-MRI to assess for LA-Fibrosis. Each LGE-MRI was segmented by isolation the LA wall and quantified for the relative extent of fibrotic remodeling using the Corview software (Marrek Inc.). Patients were placed in four staging categories based on the degree of LA fibrosis: Utah I (<10% fibrosis), Utah II (≥10% to 20%), Utah III (≥20% to 30%) and Utah IV (≥30%).

Results: 144 patients (94 male, 62±10.8 years) suffered from AF while 54 patients (25 male, 59.44± 14.7 years) were found with stable sinus rhythm (SR). 21 (38.9%) of the patients with SR were staged in Utah I, 20 (37%) in Utah II, 11 (20.4%) in Utah III and 2 (3.7%). In comparison 24 patients (16.7%, p=0.001) with AF were found in Utah I, 70 (48.6%) in Utah II, 40 (27.8%) in Utah III and 10 (6.9%) in Utah IV. Degree of LA fibrosis was significantly higher in patients with AF compared to those with SR (16.98±7.5 vs. 13.34±7.98; p=0.01). Age (59.44±14.7 vs. 62±10.76, p=n.s.), gender distribution and the incidence of myocardial infarction (3.47% vs. 5.56%), coronary artery disease (24.3% vs. 24.1%), coronary artery bypass graft (2.08% vs. 1.85%), hypertension (77.08% vs. 64.81%, p=0.072), diabetes (9.7% vs. 11%;) and congestive heart failure (13.8% vs. 5.5%, p=0.103) were comparable in both groups.

Conclusions: Our preliminary results indicate that LA fibrosis can be found in patients with AF and in patients with SR. The higher degree of fibrosis in patients with AF, and the significantly higher number of patients with SR in Utah I suggests that atrial fibrillation itself drives the structural changes in the left atrium. However, significantly altered atria can also be found in patients with SR. Therefore, cardiovascular co-morbidities appears to play an essential role in the development of LA fibrosis.